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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/501,369	07/14/2004	Norbert Auner	PACO 0101 PUSA	9387
22045 7590 09/29/2008 BROOKS KUSHMAN P.C. 1000 TOWN CENTER TWENTY-SECOND FLOOR SOUTHFIELD, MI 48075				
EXAMINER ZIMMER, ANTHONY J				
ART UNIT		PAPER NUMBER		
1793				
MAIL DATE		DELIVERY MODE		
09/29/2008		PAPER		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary

Application No.

10/501,369

Applicant(s)

AUNER, NORBERT

Examiner

ANTHONY J. ZIMMER

Art Unit

1793

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 10 September 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 28-53 is/are pending in the application.
- 4a) Of the above claim(s) 42-53 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 28-41 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/CDC)
- 4) ☐ Interview Summary (PTO-413)
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____
- Paper No(s)/Mail Date _____

DETAILED ACTION

Election/Restrictions

Applicant's traversal (in the correspondence of 9/10/2008) of the restriction requirement presented in the office action of 9/6/2007 is on the ground(s) that the groups now have a common special technical feature. This is not found persuasive because as can be seen in the 35 USC 102 rejection below, the groups lack unity because the common technical feature(s) of claim 28 is found in the prior art. Thus, the common technical feature is not a special technical feature under PCT Rule 13.2, and therefore the claims lack unity.

The requirement is still deemed proper and is therefore made **FINAL**.

Claim Objections

Claim 36 is objected to because of the following informalities: There is a grammatical error in the phrase "a solid metal particles."

Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 31 and 37-38 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The preamble of claim 31 renders the claim indefinite. The preamble recites, "Further comprising first preparing by one of the following." It is unclear what is being prepared, and when the preparation takes place in relation to the process of claim 28.

Claim 37 recites the limitation "the pressure under which the process is conducted" in the second and third lines of the claim. There is insufficient antecedent basis for this limitation in the claim. Dependent claim 38 is rendered indefinite as a result.

Claim Rejections - 35 USC § 102

The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claims 28, 30-37, and 39-40 are rejected under 35 U.S.C. 102(b) as being anticipated by Hayha '896.

In regard to claims 28, 30-31, and 34-35, HAYHA teaches reducing sodium silicon fluoride (a hexafluorosilicate salt) by heating it to produce silicon tetrafluoride gas and sodium fluoride, and reducing with an alkali or alkaline earth metal dispersed in a liquid intermediate agent, mineral oil, (a nonpolar, organic solvent). See column 2, line 53- column 4, line 6 and Examples.

In regard to claims 32-33, 37, and 40, HAYHA teaches a process of reducing a halosilane (silicon tetrafluoride) in a boiling organic, nonpolar solvent (mineral oil in particular) with molten sodium (or a Group 1 or 2 metal) dispersed and blended

(agitated) in the solvent. Furthermore HAYHA teaches separating the amorphous silicon products from other reaction components. (see Example 1 and claims 1-19).

In regard to claim 36, the sodium reducing agent is added while in the solid state and thus comprises solid metal particles in an organic solvent. See Example 1.

In regard to claim 39, Hayha teaches reacting in a boiling state, i.e. refluxing. See column 3, lines 4-26 and Examples.

Claim Rejections - 35 USC § 103

Claims 29 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hayha '896.

In regard to claim 29, Hayha does not particularly teach the use of silicon tetrachloride.

However, it would have been obvious to one of ordinary skill in the art to substitute one known halosilane for another in order to affect the predictable result of forming silicon, as it is also known (and disclosed in Hayha) that silicon tetrachloride can be reacted with sodium to produce silicon. See column 1, lines 44-47.

In regard to claim 38, HAYHA does not explicitly teach performing the reaction at atmospheric pressure, but one of ordinary skill in the art at the time of the invention would have envisaged that this is the case, because HAYHA does not mention performing the reaction under pressure or in a vacuum, and atmospheric pressure is standard operating procedure unless otherwise specified.

Claim 41 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hayha in view of Kotzsch '109.

Hayha fails to teach producing the needed reagent halosilane from crystalline silicon.

However, it would have been obvious to one of ordinary skill in the art at the time of the invention to modify Hayha in view of Kotzsch, because Kotzsch teaches a method for halosilane production from elemental (crystalline) silicon. See abstract and claims.

One would have been motivated to modify Hayha in view of Kotzsch in order to use the crystalline silicon as a source for the halosilane, produce needed halosilane, purify the crystalline silicon, and to achieve the predictable result of creating amorphous silicon from crystalline silicon.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Nanis '181, Sanjurjo '565, and Sanjurjo '783 teach processes of reducing a halosilane with a metal to produce amorphous silicon.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ANTHONY J. ZIMMER whose telephone number is (571)270-3591. The examiner can normally be reached on Monday - Friday 7:30 AM - 5:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on 571-272-1358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 1793

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

ajz

/Steven Bos/
Primary Examiner, Art Unit 1793